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Response to Office Action Dated 04/18/2006

**REMARKS**

As an overview, Claims 1—37 are currently pending. Of these pending claims:

- A) Claims 2—4, 6 and 10 remain in their original form;
- 5 B) Claims 1, 5, 7, 8, 11 and 12 are currently amended;
- C) Claim 9 has been cancelled; and
- D) Claims 13—37 were previously withdrawn.

In view of the following remarks, Applicant respectfully requests reconsideration of the rejected claims.

10 **Traversal of the §103 Rejections**

Claims 1—8 and 10—12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. App. No. 2003/0222960, hereinafter “Takabayashi” in view of U.S. Patent No. 6,508,552, hereinafter “Steinfeld” and (Claim 8) U.S. Patent No. 3,584,389, hereinafter “Hilton”. In response, the Applicant respectfully  
15 traverses the rejection.

Claim 1 has been amended to recite the elements of Claim 9. Claim 9 was rejected under Section 103. Accordingly, the Applicant will address the Section 103 rejection of Claim 9 when addressing the rejection of Claim 1.

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**Claim 1** recites an ink drying system for a printer, comprising:

- an IR heating element;
- a guide, to concentrate heat energy from the IR heating element on print media, wherein the guide comprises:
  - a collimator to direct IR energy in a substantially straight line, substantially parallel to a carriage rod upon which a printhead travels; and
  - a light pipe, movable along a direction parallel to the carriage rod, to receive IR energy from the collimator and to deliver IR energy to print media adjacent to the printhead; and
- a controller procedure to control operation of the IR heating element.

Claim 1 has been amended to recite structural aspects of the guide, which were previously seen in Claim 9, now cancelled. In particular, in the implementation of Claim 1, the guide comprises a collimator configured to deliver IR light and a light pipe configured to receive the IR light.

The use of a collimator is not seen in the prior art of record. Takabayashi does not disclose a “collimator” to “direct IR energy in a substantially straight line”. Takabayashi shows the use of left and right UV (not IR) optical fibers. Such optical fibers do not teach or suggest a collimator to direct IR energy in a substantially straight line. The optical fibers of Takabayashi do not direct IR energy, and do not direct UV light in a substantially straight line, and do not direct UV light in a substantially straight line parallel to a carriage rod.

Takabayashi does teach the transmission of light in “a substantially straight line”. In contrast, Takabayashi teaches the use of UV light, and also teaches the use of fiber optics that allows the light to be guided in a generally curved direction (see Takabayashi at Fig. 1).

Takabayashi does not teach that IR is directed “*substantially parallel to a carriage rod* upon which a printhead travels”. In contrast, Takabayashi teaches

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that the UV is directed through optical fibers that curve, and that are not substantially parallel to the carriage rod.

Additionally, Takabayashi does not teach the use of IR light. Takabayashi teaches the use of UV light for use with a UV hardenable ink (see Takabayashi at 5 0079, last lines). Note that UV and IR are not the same, and that teaching the use of one does not imply the use of the other. In particular, UV and IR are on opposite sides of the visual light spectrum. UV can be used to promote chemical reactions, and IR is known for transferring heat energy. As seen in Takabayashi's disclosure, Takabayashi teaches that UV is used in a chemical reaction.

10 Takabayashi teaches away from the use of IR energy, because Takabayashi teaches that a hot plate 9 seen in Fig. 3 is used to supply the needed heat. Thus, Takabayashi teaches the use of UV to promote a chemical reaction in the ink, and not as a source of energy, as seen in the claim. There would be no reason for Takabayashi to use IR energy, since Takabayashi teaches the use of the hot plate 9  
15 seen in Fig. 3.

The Patent Office suggests that Figs. 1—4 of the Takabayashi reference discloses the use of collimators, which direct IR energy in a substantially straight line. The Applicant respectfully disagrees.

Takabayashi does not teach the straight-line transmission of IR heat energy.  
20 Instead, Takabayashi teaches that UV light (not IR) can be sent through optical fibers 11a and 11b to the print media. The optical fibers 11 do not, "direct IR energy in a substantially straight line". In contrast, the optical fibers direct UV light in a generally curving manner as seen in Fig. 1. Takabayashi's optical fibers

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do not direct light substantially parallel to a carriage rod. Instead, the optical fibers loop in a curve that is not at all suggestive of a parallel to the carriage rod.

Takabayashi does not teach the use of a light pipe configured to receive IR energy from a collimator. Instead, Takabayashi teaches the use of fiber optics to transfer UV from a source (box 10 in Fig. 1) to the end of the fiber (as seen in Fig. 3).

Exploring this point in greater detail, the Applicant's claim, as amended, recites *both* "a collimator" and "a light pipe". It appears that the Patent Office suggests that Takabayashi, by teaching the use of optical fibers 11a and 11b, has taught *both* of these structures. The Applicant respectfully disagrees. A collimator and a light pipe have different structures and utility, as can be seen by reference to the Applicant's specification. Accordingly, the Applicant's have disclosed and recited in their claims a more complex structure than is seen in the teachings of Takabayashi.

In fact, Takabayashi, in teaching the use of fiber optics, has taught *neither* the structure of a collimator (which directs IR energy in a straight line) *nor* a light pipe, to receive collimated IR energy.

Accordingly, Takabayashi fails to teach the collimator and the light pipe, as recited by Claim 1, as amended. In summary, the Takabayashi reference fails to teach or suggest at least the following elements:

- a collimator;
- IR energy directed in a substantially straight line;
- a straight line that is substantially parallel to a carriage rod;
- a light pipe, configured to receive IR energy from the collimator.

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Moreover, Takabayashi teaches away from the use of IR, since Takabayashi teaches the use of a hot plate to provide heat.

The Steinfield reference was not cited by the Patent Office as teaching the collimator and/or the light pipe of Claim 1. Accordingly, the Applicant asserts  
5 that the Steinfield reference does not remedy the failings of the Takabayashi reference to teach these elements.

Claims 2—12 depend from Claim 1 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features that, in combination with those recited in Claim 1, are neither taught nor  
10 suggested in references of record, either singly or in combination with one another.

Claim 7, as amended, recites the system of claim 1, wherein the light pipe comprises: a collector; a pipe, in communication with the collector; and an emitter, in communication with the pipe.

15 Claim 7 recites aspects of the light pipe recited in Claim 1. The Takabayashi reference does not show such a light pipe. For example, Takabayashi does not teach or suggest a collector. In contrast, Takabayashi teaches that the optical fiber is connected to the UV source 10 (Fig. 1) and the printhead (Fig. 3).

The Patent Office suggests that Takabayashi shows a collector. However,  
20 since Takabayashi shows only a fiber optic cable, further clarification of this issue is requested.

### **Conclusion**

The arguments presented above are intended to present the Applicant's position clearly, but should not be considered exhaustive. Accordingly, the

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Applicant reserves the right to present additional arguments to clarify the Applicant's position further. Moreover, the Applicant reserves the right to challenge the status as prior art of one or more documents cited in the Office Action.

5        The Applicant submits that the claims as presented are in condition for allowance. Accordingly, the Applicant respectfully requests that a Notice of Allowability be issued. If the Patent Office's next anticipated action is not the issuance of a Notice of Allowability, the Applicant respectfully requests that the undersigned attorney be contacted to schedule an interview.

10        Respectfully Submitted,

15        Dated: 18 July 2006

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